

**PHILIP MORRIS USA**  
**Smoking/Physical Testing**

*File*  
**Inter-Office Correspondence**

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NOV 25 1992

TO: B. B. Strang

DATE: November 24, 1992 A FENNER

FROM: R. P. Holleman

SUBJECT: **FTC Equilibrated vs. Desert Room Smoke Delivery (#2)**

***Purpose:***

A special study was conducted to determine the affect of extremely low OV levels on smoke delivery with emphasis on tar per puff.

***Conclusion:***

Smoke delivery is significantly impacted by the OV level. Both nicotine and tar per puff were significantly higher in cigarettes equilibrated at Desert Room conditions (OV 5.5%). A significant decrease in puff count, approximately two puffs per cigarette, was also noted in the Desert Room samples. These factors may contribute to "T/O/S" complaints as much as the low OV level itself.

***Test Procedure:***

This test was identical to one done earlier this month (memo dated November 3, 1992). Marlboro KS SP produced at Cabarrus was used for the test. Samples were equilibrated in normal FTC conditions, 75% F and 60% RH, and smoked. Another sample was smoked after it was placed in the Desert Room and brought down to approximately 5.5% OV. The remainder of the sample from the Desert Room was equilibrated back to FTC conditions in the lab and smoked. Thirty-two ports were smoked using the FTC method. This test simulates the "worst case scenario" in the market place.

***Discussion:***

A table is included showing the average, standard deviation, range and number for total particulate matter, nicotine, water, tar, puff count and tar per puff for the three samples (Table 1). Histograms of tar per puff are also included (Figure 1).

Statistical analysis was done to determine if there were significant differences (at 95% level) in the smoke devliery of the Desert Room samples as compared to FTC Equilibrated and Re-equilibrated samples. Attention was also given to similarities/differences in this study as compared to the first study.

Tar per puff increased significantly at 5.5% OV as compared to the FTC OV level of 15.0%. The increase represented a 20% change and was driven by the slightly higher tar and significant decrease in puff count. Though statistically this study showed differences in tar between the original and the Desert Room sample, from a practical standpoint it is insignificant (15.6 versus a 15.9 mg tar). The first study showed no differences in tar.

Both studies give strong indication that the decrease in puff count and the increase in nicotine for the Desert Room sample is significant (p value .0001). Both studies also confirm that delivered water in the re-equilibrated sample is significantly higher than the original sample.

This study is currently being conducted with OV at a more realistic market place level (approximately 10.5%) This information will be useful in determining tar, tar per puff and other parameters.

RPH/rbw

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